

**IN THE UNITED STATES PATENT & TRADEMARK OFFICE**



Applicant: J. Randall Hall

Examiner: Sara Addisu

Serial No: 10/657,890

Group Art Unit: 3722

Filed: 09/09/03

For: METHOD FOR TUBE END PREPARATION AND MILLING HEAD  
THEREFORE

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

**AFFIDAVIT OF FACT UNDER 37 CFR §1.132**

Sir:

I, Mark W. Hillestad, being duly sworn, hereby state:

THAT I am inventor of U.S. Patent No. 5,542,177, issued August 6, 1996, for boiler tube bank repair;

THAT I have received a B.A. Degree in Political Science and Economics from Kent State University in 1976;

THAT I have been involved in the field of rotary milling tools and boiler bank tube bank repair for approximately 29 years;

THAT I am the inventor on at least six U.S. patents, all relating to rotary milling tools;

THAT I have read U.S. Patent No. 5,542,177 ('177) of which I am the inventor;

THAT '177 teaches a method and apparatus for repairing boiler tube walls utilizing a power tool having a rotary milling head specifically adapted to remove membrane material which is located between adjacent tubes, see abstract and column 2, lines 59-65.

THAT before a new or replacement section of tube wall can be installed, it is necessary to first remove membrane material from between the tube ends and then bevel the tube ends, see column 4, lines 49-52.

THAT the milling head disclosed in the '177 patent relates to cutting blades 38 having an annular cutting sweep and an inner radius that is preferably about equal to the outer radius of one of the tubes of the tube wall, and an outer radius of the cutting sweep equal to the sum of the radius of the tube of the tube wall plus from 50 to 100

percent of the width of the membrane material between adjacent tube, see column 5, lines 17-34.

THAT I did not teach in the '177 patent, nor did I suggest the fabrication of a milling head that can be utilized to remove a predetermined amount of radial thickness from the outer diameter of a tube to a predetermined depth;

THAT I did not teach in the '177 patent nor did I suggest a milling head having a blade with a face surface with a bore therethrough, with a blade having a countersink around the bore capable of receiving at least a portion of the head of the securing element, wherein the milling head is adapted to remove an outer radial thickness from an annular tube; and

THAT I did not teach in the '177 patent, nor did I suggest a milling tool containing a securing element which connects the blade to the body whereby the securing element has a head portion which extends out from the blade face surface a first distance which is less than or equal to a second distance measured from a lower edge of the securing element head to a lower cutting edge of the blade.

Date: 8/19/05

Mark W. Hillestad  
Mark W. Hillestad

STATE OF OHIO )  
COUNTY OF Summit )

Before me, a Notary Public in and for said County and State, personally appeared Mark W. Hillestad, who acknowledged that he executed the foregoing instrument as his own free act and deed.

In witness whereof, I have hereunto set my hand and seal this 19<sup>th</sup> day of August, 2005.

Gary G. Cooper  
Notary Public

SEAL

**GARY G. COOPER, Attorney at Law**  
**Notary Public - State of Ohio**  
**My Commission has no expiration**  
**date. Section 147.03 R.C.**